

NATHANIEL COGNEAUX

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Profile

- I have a strong interest in research & development of data-driven models. I have experience in mathematical modeling, AI & ML, finance and data analysis.
- Fast learner, adaptable, and culturally aware, with experience living and working in Korea. I am driven by curiosity and a strong commitment to continuous learning. My passion lies in applying theoretical and creative ideas to solve real-world problems.

Work Experience

AI Engineer

Jan 2025 - Today

PriceOne (Startup), Gangnam-gu, Seoul, South Korea

6 months, On-site, Full time

- Built end-to-end AI system - **MLOps** (FastAPI, AWS, Docker, cron, Apache Airflow, MLFlow)
- Designed and implemented workflow orchestration and scalable ML pipelines
- Developed multivariate **time series forecasting models** (LightGBM, XGBoost, Linear regression)
- Worked on Features & Model Engineering
- Applied Optimization, yield management & dynamic pricing techniques
- Conducted Exploratory Data Analysis, built data processing pipeline from raw data
- Delivered technical **AI pitch to VCs** - generated strong interest and support

AI Research Internship

April - November 2024

Hanyang University, Seoul, South Korea

8 months, On-site

- Led research on Probabilistic Forecasting using Bayesian models with Pr. Sungyong Baik
- Worked with Residual Networks in **Computer Vision**, supervised learning
- **Developed** a scalable, model-agnostic, post-hoc, single-pass uncertainty quantification method
- Achieved results close to **state-of-the-art** with reduced assumptions & computational overhead

Summer Software Engineer Intern

July - August 2023

QuantK, Paris, France

2 months, Hybrid

- Real-time Inter-Process Communication, using shared memory C++, C++/CLI, C# (optimizing client-server communication and internal data structures)
- Improved the communication process capacity by over **10x**, reducing latency and enhancing performance
- Development of a benchmark environment to simulate automatic strategy executions and perform stress tests

Summer Quantitative Researcher Intern

June - August 2022

Taiga Capital Investment Limited, Paris, France

3 months, Hybrid

- Pattern recognition with different convolutional AI on **time series data**, Keras/Tensorflow
- Parallel implementation of Statistical tests, C#, **doubled** the execution speed
- Research on a non-parametric **time series** forecasting metric, Python
- Study on Cross-Sectional Systematic Strategies enhanced with LTR (Learning to Rank) models

Education

MSc – Mathematics and Applications - MASEF - Magna cum laude

2024

Univ. PSL, **24th** in QS World University Rankings

Paris, France

- Applied Mathematics with an emphasis on Quant Finance, Machine Learning & AI.
- Key courses: Advanced Stochastic modeling, Stochastic Control, Pytorch projects, Optimization, Machine Learning, Reinforcement Learning, Numerical methods, Optimal transport, Bayesian ML, Statistics.
- **Excellence Scholarship** - PGSM program, issued by the Paris Mathematical Sciences Foundation
- **Pierre Ledoux Foundation International Youth Scholarship**

MSc – Laurea Magistrale in Matematica - Summa cum laude

2024

Univ. degli studi di Padova, ranked **3rd** for Mathematics in Italy

Padova, Italy

- Mathematics, Key courses: Numerical methods for PDEs, Advanced Stochastic Processes, PDEs, Differential Geometry, Differential Equations (Optimal Control, HJB, Differential Games & MFGs), Probabilities.
- **Seminar (as lecturer):** Backward Stochastic Differential Equations, Padova
- **Graduate Math Program Scholarship** - MAPPA program

Bachelor's Degree – Applied Mathematics - Magna cum laude

2022

Univ. Paris Dauphine, ranked **3rd** for Applied Mathematics in France

Paris, France

- Mathematics & Statistics Track
- **Math Tutor:** Tutored undergraduate mathematics students (September 2021 - July 2022)

Hard skills & programming

Programming languages	Python, C#, VBA, C++, C++/CLI, .NET, SQL
Dev tools	Git, Linux, VS Code, Visual Studio
Top python libraries	Pytorch, scikit-learn, Optuna, W&B, Pandas, Streamlit, fastAPI, Airflow
Office Tools	Microsoft Excel, Word, PowerPoint, Outlook

Soft Skills

- | | |
|-------------------|-----------------------------|
| • Teamwork | • Organized |
| • Communication | • Attention to detail |
| • Adaptability | • Critical thinking |
| • Problem solving | • Research-oriented mindset |

Projects & Hackathons

- Weather Forecasting - comparing Random Forest, XGBoost, TFT & Catboost, Python, 2024
- NLP for Financial Sentiment - comparing Naive-Bayes, RNN, LSTM & Transformers, Pytorch, 2024
- **Data For Good - Hackathon** - JPMorgan Chase & Co., 2023
- Unbiased Simulations of Stochastic Differential Equations - Monte Carlo project, Python, 2023
- Monte Carlo-based pricer for vanilla & exotic options, VBA, 2023
- Binomial option pricing: study of the Leisen Reimer model, VBA, 2023
- Statistical risk management for futures portfolios, VBA, 2020
- 3D Smoothed Particle Hydrodynamics fluid real time simulation, parallel implementation, Python, 2020

Languages

French	Native
English	Full professional proficiency - TOEFL iBT 102/120, C1 level by EU Academy
German	Elementary proficiency
Korean	Notions

Hobbies

- Sport, running (Half Marathon)
- Chess (French University Championship)
- Scuba Diving (CMAS lvl 1)
- Walking around & taking photos